PHOTOLUMINESCENCE PROPERTIES OF LAYERED $Pb_{1-x}Cd_xI_2$ SOLID SOLUTIONS

Yu.P. Gnatenko[1], *M.S. Fur'yer*[1], *P.M. Bukivskij*[1], *P.A. Skubenko*[1], *Yu.P. Piryatinski*[1], *R.V. Gamernyk*[2]

[1]Institute of Physics, Nat. Acad. of Sci. of Ukraine (*46, Prosp. Nauky, Kyiv 03028, Ukraine*),
[2]Ivan Franko National University of L'viv (*8, Kyrylo i Mefodiy Str., Lviv 79005, Ukraine*)

S u m m a r y

We have studied the photoluminescence spectra, including the time-resolved ones, and the photodiffusion spectra of PbI_2 crystals and $Pb_{1-x}Cd_xI_2$ solid solutions. It is established that these crystals have monopolar (hole) photoconductivity. The possibility of the formation of PbI_2 clusters with various sizes in solid solutions is shown. It is found that the value of splitting between Γ_3^-- and Γ_1^--exciton states in such clusters is 30 and 36 meV for $x = 0.50$ and $x = 0.70$, respectively. We have revealed that, for $x = 0.50$, the self-trapping excitons in PbI_2 clusters happens.